

# Instructions for Resistance Characteristics Curve Lab

For Part 1 (330  $\Omega$  resistor):

- Plot the resistance characteristic curve *by hand* directly in your lab notebook. You will not be using the computers this week to plot graphs.
- Draw the best fit straight line on your hand-plotted graph and calculate its slope (with uncertainty).
- Calculate the slope and  $y$ -intercept (along with their uncertainties) using linear regression. You will be using Microsoft Excel to assist in the calculations.
- Compare the slope obtained from the hand-plotted graph with the slope calculated by linear regression (use the Discrepancy Test).
- Compare the  $y$ -intercept calculated by linear regression to  $0 \pm 0$ .
- Calculate the resistance of the 330  $\Omega$  resistor (with its uncertainty) from the slope computed by linear regression.
- Measure the resistance of the 330  $\Omega$  resistor with the DMM, and compare your measurement with the value calculated above.

For Part 2 (the light bulb):

- Plot the resistance characteristic curve *by hand* directly in your lab notebook. Make sure you take enough data near 0 V to get an accurate curve.
- Do *not* attempt to fit a straight line to your graph, and do *not* perform linear regression on your data. Doing so could cost you points. You simply need to answer the questions posed in the lab text.